حسب القاعدة التالية :

$$a_nxR^n+a_{n-1}xR^{n-1}+...+a_2xR^2+a_1xR^1+a_0xR^0+a_{-1}xR^{-1}+a_{-2}xR^{-2}+...+a_{-m}xR^{-m}$$

حل المسائل التالية :

1) Convert from Binary to Decimal

a) $(10101)_2$

$(10101)_2 = (1 \times 2^4) + (0 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) = (21)_{10}$

b) $(111)_2$

$(111)_2 = (1 \times 2^2) + (1 \times 2^1) + (1 \times 2^0) = (7)_{10}$

c) $(1001.11)_2$

$(1001.11)_2 = (1 \times 2^3) + (0 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) + (1 \times 2^{-1}) + (1 \times 2^{-2}) = (9.75)_{10}$

d)$(101.101)_2$

$(101.101)_2 = (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) + (1 \times 2^{-1}) + (0 \times 2^{-2}) + (1 \times 2^{-3}) = (5.625)_{10}$

2) Convert from Octa to Decimal

a) $(1032)_8$

$(1032)_8 = (1 \times 8^3) + (0 \times 8^2) + (3 \times 8^1) + (2 \times 8^0) = 538$

b) $(765)_8$

$(765)_8 = (7 \times 8^2) + (6 \times 8^1) + (5 \times 8^0) = 501$

c) $(123.12)_8$

$(123.12)_8 = (1 \times 8^2) + (2 \times 8^1) + (3 \times 8^0) + (1 \times 8^{-1}) + (2 \times 8^{-2}) = 83.15625$

d) $(42.767)_8$

$(42.767)_8 = (4 \times 8^1) + (2 \times 8^0) + (7 \times 8^{-1}) + (6 \times 8^{-2}) + (7 \times 8^{-3}) = 34.982421875$

3) Convert from Hexa to Decimal

a) $(1A2B)_{16}$

$(1A2B)_{16} = (1 \times 16^3) + (10 \times 16^2) + (2 \times 16^1) + (11 \times 16^0) = (6699)_{10}$

b) $(F99)_{16}$

$(F99)_{16} = (15 \times 16^2) + (9 \times 16^1) + (9 \times 16^0) = (3993)_{10}$

c) $(E87.E)_{16}$

$(E87.E)_{16} = (14 \times 16^2) + (8 \times 16^1) + (7 \times 16^0) + (14 \times 16^{-1}) = (3719.875)_{10}$

d) $(101.B5)_{16}$

$(101.B5)_{16} = (1 \times 16^2) + (0 \times 16^1) + (1 \times 16^0) + (11 \times 16^{-1}) + (5 \times 16^{-2}) = (257.70703125)_{10}$